

is to be found for some distance in the direction of Lake Victoria, though it would seem that its range is not a wide one.

The small form of the Topi (*Damaliscus tiang*) is first met with, both according to native testimony and my own observation, in about 4° N. lat., and is common for a considerable distance northwards. Apparently they exist to the west of the Nile only. Jackson's Hartebeest is common on both sides of the river, and though I have frequently noticed herds of both species grazing on the same plains, I have never seen them intermixed.

The Albert Edward species is the larger animal, and probably 3 or 4 inches higher at the shoulder. The body-skin, both in marking and colouring, is strikingly similar to that of the Tsessebe, and consequently much darker than the Nile species, which lacks the rich colouring and shading of its southern relative.

Mr. Sclater exhibited two native bandoliers or waist-belts just received from Sir Harry Johnston, K.C.B., F.Z.S., formed from the skin of the supposed new Zebra as described by Sir Harry in the letter read at the Meeting on Nov. 20th (see above, p. 774). It was difficult to say exactly from what part of the body these pieces of skin had been taken, but they were probably from the shoulders and hind legs, as described in Sir Harry's letter. However this might be, they appeared to be different from any portions of the skin belonging to the known species of Zebra, and, if the account given by Sir Harry of what was said by the natives on the subject was correct, would certainly indicate the existence of a new species of Zebra in this part of the Congo Forest, or somewhere in its neighbourhood.

Mr. Sclater promised additional particulars on this subject after further examination of the specimens.

The following papers were read :—

# 1. Notes on the Fauna of the White Nile and its Tributaries.

By Captain STANLEY SMYTH FLOWER, F.Z.S., 5th Fusiliers.

[Received September 13, 1900.]

- I. Introductory Notes, p. 950.
- II. Mammals, p. 952.
- III. Birds, p. 956.
- IV. Reptiles, p. 967.
- V. Batrachians, p. 968.
- VI. Fishes, p. 969.

- VII. Molluscs, p. 970.
- VIII. Insects, p. 971.
- IX. Millipedes, p. 972.
- X. Centipedes, p. 973.
- XI. Arachnids, p. 973.
- XII. Crustaceans, p. 973.

## I. INTRODUCTORY NOTES.

No Europeans having been able to visit the White Nile for many years owing to the Mahdist insurrection, these notes on the animals seen during an expedition up this river may be of interest.

The following itinerary will help to localize the places mentioned in this paper, which are not marked in the ordinary atlases available :—

- 11th March, 1900. Leave Omdurman and proceed up the White Nile.
- 12th. Pass El Duem, and later Kowa.
- 13th. Cross 14° North lat. in morning, pass Goz Abu Goma, and arrive at Abu Zeit.
- 16th. Leave Abu Zeit.
- 17th. Pass Jebel Ain in morning.
- 18th. Reach Renk in evening.
- 19th. Reach Long Tom in evening.
- 20th. Pass Jebel Ahmed Agar.
- 21st. Pass Kaka.
- 22nd. About 5 A.M. reach Fashoda, and about 9 P.M. the Sobat.
- 23rd. Reach the base-camp of the sudd-cutting expedition near Gabt-el-Meghahid; about 5 P.M., mouth of the Bahr-el-Zeraf.
- 24th–26th. Proceed about 50 miles up the Zeraf and back again.
- 27th. Proceed west along the White Nile, pass the mouth of the Bahr-el-Jebel, reach Lake No.
- 28th. Leave Lake No, proceed up the Bahr-el-Ghazal.
- 29th. Visit tributaries of the Bahr-el-Ghazal (the Bahr-el-Arab, proceeding about 12 miles up and back again; the Bahr-el-Homar found unnavigable).
- 30th. On Lake Ambadi, near Meshra er Rek.
- 31st March–2nd April. Return down the Bahr-el-Ghazal to Lake No.
- 3rd April. Proceed up the Bahr-el-Jebel.
- 5th. Pass Heliat Nuer (= Meshra Nuer, or Eljab Dok).
- 8th. Reach neighbourhood of Shambé (=Schambeh), about 7° 20' North latitude, and about 830 miles from Omdurman, and turn back on account of shallow water and want of fuel for the steamer.
- 14th. Get back to mouth of the Bahr-el-Jebel, and 11 P.M. reach Gabt-el-Meghahid.
- 16th. Proceed about 12 miles up the Sobat and down again.
- 17th. Reach Fashoda.
- 26th. Arrive back at Omdurman.

I have to acknowledge my deep sense of obligation to Sir William Garstin, K.C.M.G., and to Mr. C. Crawley for their assistance in noting facts of interest and in securing specimens during the two months I had the privilege of travelling with them on the Nile; and to the officials of the British Museum of Natural History for their invariable kindness in helping me to work out the collections brought home. I am particularly indebted to Mr. Oldfield Thomas and to Mr. W. R. Ogilvie Grant.

The nomenclature of the birds in this paper is according to the British Museum Catalogue, but the Orders are arranged as far as

possible as in the Exhibition Bird Gallery, and not according to the volumes of the Catalogue.

## II. MAMMALS.

### Family CERCOPITHECIDÆ.

#### CERCOPITHECUS SABÆUS (L.).

The Grivet Monkey was noted on the 14th and 15th of March at Abu Zeit, and on the 19th of March near Renk; each time in small parties of five or six individuals, sometimes walking on the ground, sometimes in trees. We saw no other species of monkey along the White Nile, but at Gabt-el-Meghahid, through the kindness of Major M. Peake, R.A., and Captain H. N. Dunn, R.A.M.C., I obtained from natives two live specimens of the Red Monkey (*Cercopithecus patas*) and a young Baboon (*Papio anubis* or an allied species), all three said to have been caught in Southern Kordofan.

### Family LEMURIDÆ.

Two Lemurs, apparently some species of *Galago*, were obtained by Mr. E. S. Jackson, Welsh Regt., between Jebel Ain and Jebel Ahmed Agar.

### Family FELIDÆ.

#### FELIS LEO (L.).

Lions were met with between Jebel Ahmed Agar and Kaka during March.

#### FELIS PARDUS L.

A Leopard was shot near Gabt-el-Meghahid, and a young one caught alive near Kaka.

#### FELIS SERVAL Schreb.

A Serval was shot by Mr. C. Crawley near Kaka on the 18th of April.

#### GENETTA sp. inc.

A Genet was shot near Gabt-el-Meghahid; the skin is now in the British Museum, but more specimens are required of these animals from various localities before it can be identified. I have also at different times obtained two Genets from the neighbourhood of Omdurman.

### Family HYÆNIDÆ.

#### HYÆNA CROCUTA (Erxl.).

We saw a Spotted Hyæna on the Bahr-el-Ghazal on the 29th March, heard them at night on the White Nile on the 20th April, and a skull was picked up near the Bahr-el-Zeraf.

## Family CANIDÆ.

CANIS sp. inc.

On the 17th March, some miles south of Jebel Ain, towards evening, we saw a reddish-brown Jackal or dog by the side of the river. We never heard Jackals howling at night.

## Family VESPERTILIONIDÆ.

SCOTOPHILUS NIGRITA (Schreb.).

Two Bats of this species were obtained at Abu Zeit on the 14th March, just after sunset, flying over the river's bank.

VESPERTILIO sp. inc.

One specimen obtained at Abu Zeit, 14th March.

On the 29th March on the Bahr-el-Ghazal a big-eared Bat, with beautiful red-orange-coloured body, ears, and wings, was numerous : unfortunately no specimens were obtained.

## Family MURIDÆ.

MUS RATTUS L.

Some young Rats caught in April on board one of the barges employed in the sudd-cutting in the Bahr-el-Jebel were apparently of this species.

## Family LEPORIDÆ.

LEPUS sp. inc.

A few pale reddish-brown Hares were seen near Abu Zeit on the 14th and 15th of March. Some skins of these White Nile Hares would, I am told, be acceptable at the British Museum.

## Family ELEPHANTIDÆ.

ELEPHAS AFRICANUS Blum.

Wild Elephants were met with on the Zeraf, Jebel, and Ghazal rivers, and on the south bank of the White Nile between the mouths of the Sobat and Jebel. Personally I saw them on ten different days : they were usually accompanied by small white Egrets perched on their backs. One day I had a good view of a frightened Elephant running away, it was amusing watching an Egret trying to keep its position on the great beast's back.

## Family GIRAFFIDÆ.

GIRAFFA CAMELOPARDALIS L.

We saw only two Giraffes, on the Bahr-el-Zeraf on the 24th of March.

## Family BOVIDÆ.

BOS CAFFER ÆQUINOCTIALIS (Blyth).

On the 3rd of April on the Bahr-el-Jebel we saw two Buffaloes,



grand beasts, they looked very black in colour; and on the 20th of April some of our party came on a large herd between Jebel Ahmed Agar and Long Tom.

*BUBALIS* sp. inc.

There is not yet enough material collected to ascertain the proper specific name of the Hartebeest of this region; the specimens I have seen seemed to me to be probably *B. jacksoni*.

A few Hartebeests were met with some miles north of Renk, and also on the Bahr-el-Ghazal; they were usually among herds of *Damaliscus tiang*.

*DAMALISCUS TIANG* (Heuglin).

This Antelope was met with, frequently in large herds, on the White Nile from about a day's steaming to the south of Jebel Ain to near Lake No, and also on the Zeraf and Ghazal rivers. Major Gwynn, D.S.O., R.E., told me he saw the Tiang on the Sobat 70 or 80 miles from its joining the White Nile, but none on the Upper Sobat.

The horns of different individuals vary very little in length, the largest male horns I have noted were  $19\frac{3}{4}$  inches along their front curve.

*COBUS DEFASSA* (Rüpp.).

This Waterbuck was met with along the White Nile to the south of Jebel Ain, and on the Zeraf and Ghazal rivers.

*COBUS LEUCOTIS* (Licht. et Pet.).

The White-eared Kob was met with along the White Nile from some distance north of Jebel Ahmed Agar southwards to Lake No, and on the Zeraf and Ghazal rivers; it also occurs on the Sobat. Often seen in large herds: the old bucks have beautiful glossy black backs; the young bucks are reddish like the does.

*COBUS THOMASI* Neumann.

Captain R. M. Sanders, Worcestershire Regt., showed me the skin, skull, and horns of an Antelope he had shot, early this year, between Jebel Ain and Renk, which exactly agrees with the description of this species in the 'Book of Antelopes' (ii. p. 131, pl. xxxix.).

*COBUS MARIA* Gray.

Mrs. Gray's Waterbuck was only seen on six different days, on the Bahr-el-Jebel, Bahr-el-Ghazal, and on the White Nile between Lake No and the mouth of the Bahr-el-Zeraf; usually in very small herds, twenty was the largest number of individuals seen together. We met with this species only in swampy land, intersected by khors full of water, that a man cannot get about in without risk of being bogged or attacked by crocodiles. The wide

curling horns of *C. maria* look very fine, but the gait of the animal when galloping over the rough ground is very ungainly and awkward looking.

*CERVICAPRA BOHOR* (Rüpp.).

The Bohor Reedbuck was met with near Jebel Ahmed Agar, and on the Zeraf and Ghazal rivers; singly or in parties of one buck and one or two does. I think this species the most graceful of all the White Nile antelopes.

*OUREBIA MONTANA* (Rüpp.).

Oribis were met with near Kaka and Jebel Ahmed Agar, singly or in pairs, in the long grass and bush. Both sexes are coloured alike: that is, rich reddish fawn above, paler at the sides, and white underneath; there is no black at all on tail, face, or sides.

*GAZELLA RUFIFRONS* Gray.

The Red-fronted Gazelle was met with on both banks of the White Nile from Abu Zeit to Kaka.

*Colour* (sexes alike). Above bright rufous fawn, below pure white, a well-defined and conspicuous black stripe on the side of the body, last three-quarters of tail black: no black marks on face.

*HIPPOTRAGUS EQUINUS BAKERI* (Heugl.).

Baker's Roan Antelope, locally known as the "Abu Aroof," was met with near Jebel Ahmed Agar and on the Bahr-el-Zeraf.

*TRAGELAPHUS* sp. inc.

A large long-horned species of Bushbuck was observed by Lieut. Drury, R.N., on the Bahr-el-Jebel.

Family *SUIDÆ*.

*PHACOCHÆRUS AFRICANUS* (Gm.).

Wart-hogs were met with only on the 22nd April, some miles south of Jebel Ain.

Family *HIPPOTAMIDÆ*.

*HIPPOTAMUS AMPHIBIUS* L.

The Hippopotamus was first seen a little to the south of 14° North latitude, but did not become plentiful till south of Abu Zeit ford: these Northern animals were rather angular and starved-looking. Except in that part of the Bahr-el-Jebel where the sudd blocks were, we found the Hippopotamus very numerous wherever we went on the White Nile, Zeraf, Jebel, Ghazal, and Arab rivers, particularly in Lakes No and Ambadi. Between the 13th March and the 23rd April we saw Hippopotamuses on 34 days out of 42.

## III. BIRDS.

## Family CORVIDÆ.

*CORVUS SCAPULATUS* Daud.

This very fine black-and-white Crow was seen on the White Nile, from within half a day's steaming south of Omdurman to Lake No, and on the Sobat and Bahr-el-Zeraf; it was numerous round native villages and camps. During twelve days I stayed in and about Omdurman in April and May, I did not see a single Crow, but I have met this species further north, at Shendy.

On the 22nd March, in a tree by Fashoda Fort, I saw two Crows of a smaller species, all black.

## Family DICRURIDÆ.

*BUCHANGA ASSIMILIS* (Bechst.).

This Drongo, or King Crow, we noted near Fashoda and Gabt-el-Meghahid.

## Family TURDIDÆ.

*SAXICOLA CENANTHE* (L.).

A Wheatear was shot at Gabt-el-Meghahid in March.

## Family TIMELIDÆ.

*PYCNONOTUS ARSINOË* (H. & E.).

This Bulbul was not uncommon between Jebel Ain and Jebel Ahmed Agar in April.

## Family LANIIDÆ.

*LANIARIUS ERYTHROGASTER* Rüpp.

A specimen of this Shrike was shot near Gabt-el-Meghahid in March.

## Family HIRUNDINIDÆ.

*COTYLE RIPARIA* (L.).

Sand-Martins were seen in large numbers towards evening flying over the water on the Bahr-el-Jebel every day, April 4th to 13th.

*HIRUNDO ÆTHIOFICA* Blanf.

This Swallow was numerous on the Bahr-el-Jebel in April.

## Family MOTACILLIDÆ.

A Pied Wagtail was seen on the White Nile at Abu Zeit on the 14th March, and at Fashoda on the 22nd, and a yellow-bellied Wagtail near Heliat Nuer on the 5th of April; no specimens were procured.

## Family FRINGILLIDÆ.

## PASSER DOMESTICUS (L.).

The House-Sparrow was noted at Khartoum and Omdurman in March, April, and May.

## Family STURNIDÆ.

## LAMPROCOLIUS sp. inc.

A beautiful long-tailed Glossy Starling, with bright yellow eye, was very numerous, we must have seen hundreds, from Abu Zeit to Renk, 14th to 18th March.

## Family PLOCEIDÆ.

## UROBRACHYA TRAVERSI Salvad.

This Weaver-bird was seen in flocks of hundreds in the long dry grass by the White Nile near Kaka. The rich red-brown and black coloration of the wing, with a bright orange patch on it, gives the bird a very handsome appearance when flying.

## ESTRElda PHENICOTIS Swains.

The Cordon Blue Waxbill was very numerous in the bush near Jebel Ahmed Agar. One shot on the 19th of April had iris crimson; bill pink at base, turning brown towards tip; legs and feet very pale pinkish.

## Family UPUPIDÆ.

## UPUPA EPOPS L.

A single Hoopoe was seen on three occasions: between Rink and Long Tom on the 19th March, near Kaka on the 21st March, and at the foot of Jebel Ahmed Agar on the 19th April.

## Family CAPRIMULGIDÆ.

Beautiful and strange Nightjars were seen from time to time on the White Nile, Zeraf, and Ghazal; their long streamers were visible against the sky as they flew round the steamer after sunset; no specimens were procured.

## Family CORACIIDÆ.

## CORACIAS ABYSSINICUS Bodd.

A long-tailed Roller, apparently of this species, was very common about Abu Zeit on the 13th and 14th March.

## Family MEROPIDÆ.

## MEROPS ALBICOLLIS Vieill.

Only seen on Jebel Ahmed Agar, 19th April.

## MEROPS VIRIDIS L.

One shot near Renk, 21st April.



*MEROPS NUBICUS* Gm.

This beautiful dark-headed red Bee-eater was fairly numerous along the White Nile from Abu Zeit to Lake No, and some were also seen on the Zeraf, Jebel, and Ghazal rivers. It was interesting to see these birds profiting by a bush fire: as the fire crept in a crackling line along the river-bank the Bee-eaters flew in front of it, catching and eating the insects which came out of the grass before the advancing heat. In the sunlight the brilliant colours of the living birds are wonderful; within an hour after death the brilliancy leaves the plumage.

Iris crimson, bill black, legs and feet horn-colour, claws black.

## Family ALCEDINIDÆ.

*CERYLE RUDIS* (L.).

The Pied Kingfisher seems rare on the White Nile; it was only noted on the 19th of March near Renk, on the 27th near Lake No, and on the 22nd of April near Jebel Ain; but is fairly common on the Bahr-el-Ghazal, Bahr-el-Arab, and Lake Ambadi, and is numerous on the Bahr-el-Jebel from its mouth to as far south as we went.

## Family COLIDÆ.

*COLIUS* sp. inc.

These busy little birds were seen in small parties in woods between Jebel Ain and Jebel Ahmed Agar in March and April.

## Family BUCEROTIDÆ.

*LOPHOCEROS ERYTHORHYNCHUS* (Temm.).

This Hornbill was seen near Abu Zeit on the 14th of March, and near Rink on the 18th.

*LOPHOCEROS NASUTUS* (Linn.).

Capt. H. N. Dunn, R.A.M.C., shot a Hornbill of this species, and one I saw near Gabt-el-Meghabid on the 15th of April probably belonged to it.

## Family CUCULIDÆ.

*CENTROPUS SENEGALENSIS* (L.).

A Cuckoo which I saw from time to time on the White Nile, Zeraf, Jebel, and Ghazal rivers, probably belongs to this species; specimens were shot but unfortunately lost.

## Family PSITTACIDÆ.

*PALEORNIS DOCILIS* (Vieill.).

These Parroquets were seen at Abu Zeit, where nestlings were obtained alive from natives, on the 14th of March, and near Renk on the 18th.

## Family VULTURIDÆ.

Either *Gyps fulvus* or an allied species was seen both on the Zeraf and the Ghazal; and a smaller Vulture, probably *Pseudogyps africanus* (Salvad.), on the Zeraf. *Otogyps auricularis* (Daud.) was noted on the 18th March a few miles north of Renk, and occasionally again further south. The common Egyptian Vulture, *Neophron percnopterus* (Linn.), was seen from time to time along the White Nile from Omdurman to Fashoda, and also on the Zeraf. A Vulture shot on the Zeraf, about seventy or eighty miles from its mouth, on the 25th March was apparently *Neophron monachus* (Temm.).

## Family FALCONIDÆ.

## CIRCUS MACRURUS (Gmel.).

Harrier shot near Abu Zeit, 14th March: iris golden shot with bronze, eyelid and cere yellow, bill black, legs and feet orange, claws black.

## MELIERAX sp. inc.

Seen near Renk on the 19th March, and on the Zeraf on the 24th and 26th.

## LOPHOAËTUS OCCIPITALIS (Daud.).

We saw only one specimen of this beautiful dark-crested Eagle, in a tree near Renk, on the 19th of March.

## HALIAËTUS VOCIFER (Daud.).

The Vociferous Sea-Eagle was noted on 33 out of the 47 days we were south of Khartoum, along the White Nile from Omdurman to Lake No, and on the Sobat, Zeraf, Jebel, Ghazal, and Arab rivers, and it was numerous on Lake Ambadi. On the 21st March I noted of this species "a noisy bird, often heard calling." From the 23rd March to the 13th April they were generally seen in pairs.

## MILVUS ÆGYPTIUS (Gmel.).

The common Nile Kite was noted on 27 out of the 47 days, along the White Nile, Sobat, Zeraf, Jebel, Ghazal, and Arab rivers. On this last river a specimen was shot for identification. This Kite was also noted in Khartoum in March, April, and May.

## CERCHNEIS TINNUNCULUS (L.).

The Kestrel was noted at Abu Zeit on the 14th of March, and on the Zeraf on the 24th of March.

## Family PHALACROCORACIDÆ.

## PHALACROCORAX sp. inc.

Cormorants were seen on the White Nile between Abu Zeit and

Renk in March, and some of a very small species on the Ghazal on 3rd April.

*Plotus rufus* Daudin.

Darters were noted on 32 days out of the 47; they were fairly numerous all along the White Nile from Omdurman southwards, and on the Sobat, Jebel, Ghazal, and Arab rivers. On Lakes No and Ambadi they were very numerous indeed, in flocks on the water, on the mud, in the papyrus, and on the small trees. Thirty-five individuals is the most I have counted in a flock.

Family PELECANIDÆ.

*Pelecanus onocrotalus* (L.).

The Common Pelican was noted on 10 days out of the 47, always in flocks of from fifty to ninety or even more individuals, along the White Nile from Jebel Ain southwards, on lakes by the Bahr-el-Jebel to the south of the Heliat Nuer, and on Lake Ambadi and other sheets of water connecting with the Bahr-el-Ghazal.

*Pelecanus rufescens* Gmel.

This elegant small Pelican was noted on 28 days out of the 47, either solitary or in small parties, along the White Nile from Omdurman southwards, and on the Zeraf, Jebel, Ghazal, and Arab rivers, and on Lake Ambadi. Two birds of this species were so inquisitive as to swim up to within ten yards of the steamer one day.

Family PHŒNICOPTERIDÆ.

Only once did I see any Flamingoes—on the 22nd of March, near Fashoda, two adults and one halfgrown young one walking together on a sandbank; they were probably *Phœniconaias minor* (Geoffr.).

Family ANATIDÆ.

*Plectropterus* sp. inc.

Spur-winged Geese were noted on 13 days out of the 47; on the White Nile from near Omdurman to Fashoda, on the Bahr-el-Jebel, and on Lake Ambadi, where they were numerous.

*Dendrocygna viduata* (L.).

The White-faced Tree-Duck, or "Whistling Teal" as it is commonly called in the Sudan, was first seen on the 23rd of March between the Sobat and the Bahr-el-Zeraf, then again on the 27th on the Nile and on Lake No; on the 29th we saw a few on the Ghazal and flocks of hundreds on the Bahr-el-Arab; on the 30th and 31st we saw them on Lake Ambadi in untold thousands, their whistling noise could be heard all day, as numerous flocks of from fifteen to fifty individuals kept flying along before the gunboat.

On the 2nd of April, when returning through Lake No, we saw some large flocks. On six days out of the twelve we spent on the Bahr-el-Jebel we saw some of these ducks. On the return voyage north we met flocks on five different days between Fashoda and Omdurman, seeing some within half a day's steaming of that city. On the 18th April I shot three; they all had their white faces tinged with fulvous.

*CHENALOPEX EGYPTIACUS* (Briss.).

Egyptian Geese are very numerous on the White Nile from Omdurman to about Fashoda, on some days we saw thousands; they were hardly ever out of sight along the banks as we steamed along: from Fashoda on to Lake No they were not so numerous; on the Bahr-el-Jebel we met them only at Heliat Nuer and Shambé, and then only a few at a time; on the Ghazal I saw only about six individuals during the six days we spent on it. On the 21st April near Renk by the river's edge we saw a pair with a little party of goslings.

*CASARCA RUTILA* (Pall.).

On the 11th March near Omdurman a few Brahminy Ducks were seen among the big flocks of Egyptian Geese.

*DAFILA ACUTA* (L.).

Noted many Pintail on the 11th March near Omdurman, and a few on the 21st March near Kaka.

*SPATULA CLYPEATA* (L.).

Shovellers were seen only on the 11th and 12th of March at the northern end of the White Nile.

*FULIGULA FULIGULA* (L.).

A flock of about thirty Tufted Ducks were seen on the 11th March near Omdurman, and one of about twenty on the 17th March near Jebel Ain.

Family IBIDIDÆ.

*IBIS ÆTHIOPICA* (Lath.).

The Sacred Ibis was noted on 21 days out of the 47 we were south of Khartoum; it was fairly numerous on the White Nile from close to Omdurman to Lake No, and on the Bahr-el-Ghazal, Bahr-el-Arab, and Lake Ambadi; we also saw a few on the Bahr-el-Jebel between Heliat Nuer and Shambé.

*HAGEDASHIA HAGEDASH* (Vieill.).

*PLEGADIS FALCINELLUS* (L.)

These two species of dark-coloured Glossy Ibises were seen on the White Nile south of Kowa and its tributaries.



## Family PLATALEIDÆ.

## PLATALEA sp. inc.

Spoonbills were noted only on 10 days out of the 47: on the White Nile at intervals from near Omdurman to Lake No, and on the Bahr-el-Jebel south of Heliat Nuer.

## Family CICONIIDÆ.

## DISSURA EPISCOPUS (Bodd.).

This Stork was seen only on the 23rd of March between the Sobat and Zeraf.

## CICONIA CICONIA (L.).

On the 11th of March some flocks of about twenty White Storks were seen near Omdurman; the species was again noted on the 13th, and on the 20th, some miles south of Jebel Ahmed Agar, about 5 P.M. we saw a wonderful gathering on a sandbank, there must have been more than a thousand of them. Again on the 19th of April we saw a few of this species near Jebel Ahmed Agar.

## EPHIPPIORHYNCHUS SENEGALENSIS (Shaw).

The Great Saddle-billed Stork was noted on 18 days out of the 47, either solitary or in pairs; it is not so familiar as the Maribou or Tantalus, but is not shy and wild like the Shoebill. This species we saw on the White Nile south of Renk, on the Zeraf, Jebel, Ghazal, and Arab rivers, and on Lakes No and Ambadi.

## LEPTOPTILUS CRUMENIFERUS (Less.).

The Maribou, or "Adjutant Bird," is about the most noticeable bird of this region; it was observed on 33 days out of the 47: on the White Nile from within a day's journey of Omdurman to Lake No, on the Bahr-el-Zeraf, on the Bahr-el-Jebel from its mouth to as far south as we went (about 7° 20' N. lat.), on the Ghazal and Arab, and on Lake Ambadi. It usually congregates in large parties in the neighbourhood of native camps, or where an animal has been killed. I once counted sixty-nine of these great Storks seated round the carcass of an elephant. In places where there are trees, these birds can be seen perched in their tops.

## ANASTOMUS LAMELLIGERUS Temm.

The Gape-billed Stork was noted on 30 days out of the 47; it was usually seen in large numbers busily searching for food in the mud and shallow water, or on the beds of the so-called "oyster" (*Ætheria*), left exposed by the low Nile: it is a gloomy funereal-looking bird. We observed it all down the White Nile from Omdurman to Lake No, and on the Zeraf, Jebel (as far south as we went), Ghazal, and Arab rivers, and on Lake Ambadi. Some of the flocks number many hundreds of individuals. Like the Ibises, this bird perches on trees where there are any.

*PSEUDOTANTALUS IBIS* (L.).

The African Tantalus was noted on 17 days out of the 47: on the White Nile from near Omdurman southwards, on the Jebel, Ghazal, and Arab rivers, and on Lake Ambadi. Like the Maribous, these birds are but little frightened of men and their ways; I have seen them not fly away till the steamer was within about twenty yards of them. They are very handsome birds, with, as a rule, such beautifully clean-looking white plumage and cheerful ruddy faces. They often congregate in flocks; the largest number of individuals I have counted in a flock was forty-three.

Family *BALENICIPITIDÆ*.*BALENICEPS REX* Gould.

The Shoebill or Whaleheaded Stork is termed in Arabic "Abu Markûb," *i.e.* father of a slipper. On the 28th March we first came on this species, a solitary specimen, in a marsh near Lake No; on the 29th while steaming up the Bahr-el-Ghazal we saw three or four; on the 30th a few more on Lake Ambadi, one was shot and the skin preserved; on the 31st we saw many, as the following extract from my diary shows:—"Whaleheaded Stork: saw perhaps forty or fifty in the course of the day; we tried hard to shoot another specimen with our rifles, but nobody managed to hit one; it is very curious that while all the other birds here (never having been shot at) are comparatively tame and easy to approach within fifty yards or less, the *Baleniceps* is very shy, usually flying off at about three hundred yards or even further, and it was very seldom we got a shot at them under two hundred yards, which from a moving steamer is not easy. They were to be seen usually singly, sometimes two or three within a score of yards of each other, standing about on the edges of the marsh, always in the same attitude; in the motionless way in which they stand, their solitariness, and their flight, they are more like a heron than a stork; in fact, at a distance, unless you can see the bill, it is impossible to tell them, when on the wing, from the Goliath Heron. They were most numerous by Lake Ambadi, but occurred at intervals all along the Bahr-el-Ghazal." On the 3rd of April we saw two near the mouth of the Bahr-el-Jebel, on the 5th one near Heliat Nuer; on the 7th we saw seven during the afternoon, either singly or in pairs, as usual seen standing motionless in the swamp, and very shy; and on the 8th we saw one within about thirty miles north of Shambé.

Notes on specimen shot, Lake Ambadi, 30th March:—

Iris very pale yellow. Eyelids and skin between bill and eye blue-grey like the feathers of the head, but the lower eyelid has a patch of small white feathers on it. Bill horn-colour, upper mandible being greyish towards base. Legs, feet, and claws black.

## Family ARDEIDÆ.

## ARDEA PURPUREA (L.).

The Purple Heron I only saw on three days on the White Nile (between Jebel Ain and Jebel Ahmed Agar), but it was numerous in the papyrus-swamps on the Bahr-el-Jebel and Bahr-el-Ghazal.

## ARDEA GOLIATH Cretzschm.

The Goliath Heron was noted on 30 days out of the 47 : all along the White Nile from Omdurman to Lake No, on the Zeraf, Jebel, and Ghazal rivers, and on Lake Ambadi. It is a very noble-looking bird. It was always seen solitary, never in parties. Its harsh loud cry is one of the most familiar noises heard when traveling in this region.

## NYCTICORAX sp. inc.

A Night-Heron was noted on the White Nile south of Kaka, on the Sobat and Bahr-el-Zeraf, and in flocks of a hundred or more individuals in the papyrus-swamps of the Bahr-el-Jebel and Bahr-el-Ghazal and on Lake Ambadi.

Examples of at least six more species of Herons were seen on the White Nile, but no specimens were shot.

## Family GRUIDÆ.

## GRUS GRUS (L.).

A flock of this species of Crane seen near Goz Abu Goma on the 13th of March, and near El Duem on the 25th of April.

## ANTHROPOIDES VIRGO (L.).

A flock of Demoiselle Cranes seen near Goz Abu Goma on the 13th of March, and a large flock near Jebel Ain on the 17th of March.

## BALEARICA PAVONINA (L.).

The lovely Crowned Crane was noted on 26 days out of the 47 : on the White Nile from near Omdurman to Lake No, frequently in flocks of several hundred individuals. On the 17th April I saw some scores of these beautiful birds feeding in and around the entrenchments of Fashoda Fort. We saw some near the mouth of the Sobat. On the Zeraf they were very numerous near its junction with the Nile, but, curiously, after going 20 or 30 miles upstream we saw none. On the Bahr-el-Jebel we saw only a few individuals near the furthest point south we reached. On the Ghazal and Arab rivers and on Lake Ambadi they were numerous, going about in pairs. The wild, somewhat trumpet-like call which these Cranes utter as they take to the wing is very fine.

## LISSOTIS MELANOGASTER (Kaup).

Specimens of this Bustard were shot on the Bahr-el-Ghazal on

the 2nd of April, and near Kaka on the 18th. Notes on the former specimen:—Iris golden. Bill greenish. Length, wing  $14\frac{1}{2}$  inches, tail 7 inches, tarsus 6 inches; bill, culmen  $1\frac{3}{4}$  inches, tip to gape  $2\frac{1}{3}$  inches.

*EUPODOTIS ARABS* (L.).

“Oubāra” of the Arabs. This large Bustard was occasionally seen on the White Nile, Zeraf, and Ghazal rivers.

Family *ÆDIDNEMIDÆ*.

*ÆDIDNEMUS* sp. inc.

Thickknees were seen near Kaka on the 21st March, near Gabt-el-Meghabid 15th April, near Fashoda 17th April, and were numerous on the Zeraf and Ghazal rivers.

Family *CURSORIIDÆ*.

*PLUVIANUS ÆGYPTIUS* (L.).

Only seen on Lake Ambadi on the 31st March, and on the Bahr-el-Jebel on the 14th April.

Family *PARRIDÆ*.

*PHYLLOPEZUS AFRICANUS* (Gm.).

This white-faced red Jacana was seen solitary or in little flocks of four or five individuals, occasionally on the White Nile from Long Tom southwards, and frequently on Lake Ambadi and the Zeraf, Jebel, Ghazal, and Arab rivers.

Family *CHARADRIIDÆ*.

*HOPLOPTERUS SPINOSUS* (L.).

This Plover was noted on 25 days out of the 47: on the White Nile from near Omdurman to Lake No, and on the Zeraf, Jebel, Ghazal, and Arab rivers.

*HIMANTOPUS HIMANTOPUS* (L.).

Stilts were seen near El Duem, Abu Zeit, Jebel Ain, &c. on the White Nile, a little south of Heliat Nuer on the Bahr-el-Jebel, and on the Bahr-el-Arab.

*RECURVIROSTRA AVOCETTA* (L.).

Noted Avocets on the 12th of March a little north of El Duem.

*NUMENIUS ARQUATUS* (L.).

*NUMENIUS PHÆOPUS* (L.).

Both Curlews and Whimbrels noted in the northern part of the White Nile in March.



## Family LARIDÆ.

## HYDROCHELIDON HYBRIDA (Pall.).

A Tern seen at El Duem, and elsewhere, was probably of this species. At least two other species of Terns were observed, but no specimens were procured.

## RHYNCHOPS FLAVIROSTRIS Vieill.

Flocks of red-billed Skimmers were seen on five occasions: near Rink, near Fashoda, on Lake No, and between Heliat Nuer and Shambé.

## Family PERISTERIDÆ.

## TURTUR AMBIGUUS Bocage.

This Turtle-Dove seems very numerous in suitable localities along the White Nile, from a little south of Kowa to the last woods near Lake No, also on the Sobat, Zeraf, and Ghazal rivers. On the Bahr-el-Jebel, owing to the general absence of trees, we only occasionally saw any doves.

Iris golden; bill black; legs and feet pink; claws dark horn.

## CHALCOPELIA AFRA (L.).

This beautiful little Pigeon is numerous in the woods and flies very swiftly; it was noted from Abu Zeit southwards along the White Nile and also on the Bahr-el-Zeraf.

## Family PTEROCLIDÆ.

## PTEROCLES QUADRICINCTUS Temm.

Captain Dunn, R.A.M.C., shot a Sand-grouse of this species near Gabt-el-Meghabid in March.

On the White Nile from a little south of Omdurman to Abu Zeit, 12th to 16th March, we saw large flocks (in some cases there must have been thousands of individuals) of Sand-grouse come down to the river, usually about 9 A.M. No specimens were shot, so I could not identify the species.

## Family PHASIANIDÆ.

## NUMIDA PTILORHYNCHA Licht.

"Gedad" of the Arabs. These Guinea-fowl were seen on the White Nile near Goz Abu Goma, Abu Zeit, Jebel Ain, Renk, Jebel Ahmed Agar, Kaka, Gabt-el-Meghabid, &c., and on the Bahr-el-Zeraf. At daybreak and towards sunset flocks of from twenty to over a hundred individuals may be seen drinking at the river's edge. They are excellent eating.

## IV. REPTILES.

## Family PELOMEDUSIDÆ.

*STERNOTHERUS ADANSONI* (Schweigg.).

This Water-Tortoise was found on the White Nile from Abu Zeit southwards, and on the Zeraf and Ghazal rivers.

The British Museum contains a specimen collected by Consul Petherick on the Upper Nile.

## Family TRIONYCHIDÆ.

*CYCLANORBIS SENEGALENSIS* (D. & B.).

Remains of this Turtle were found lying on the banks of the White Nile as far north as Renk, and on the Bahr-el-Zeraf.

## Family CROCODYLIDÆ.

*CROCODYLUS NILOTICUS* Laur.

Crocodiles were noted on 30 days out of the 47 we were south of Khartoum. We first saw them about 20 miles to the north of El Duem, but they did not become numerous till south of Abn Zeit ford. From Jebel Ain onward to about Fashoda, Crocodiles were seldom out of sight, often in large numbers: for instance on 17th March I counted 21 individuals lying at one spot on the tail of an island, and on 18th April 22 basking on one sandbank. On the Bahr-el-Zeraf small Crocodiles were numerous, I caught one alive. We also saw some Crocodiles on the Lake No end of the White Nile, on the Bahr-el-Jebel, Bahr-el-Ghazal, Bahr-el-Homar, and Lake Ambadi; they were probably as numerous on these rivers as on the White Nile, but the thick masses of reeds prevented one seeing them, and on the Bahr-el-Jebel the Crocodiles were, curiously, very shy and we could not get within shooting distance of them.

Most of the Crocodiles seen were under 12 feet in length, but some must have approached 15 feet; the largest specimen I actually measured, killed by natives near Fashoda, was 14 feet long. The only really large ones we saw were on the Bahr-el-Jebel, between Heliat Nuer and Shambé; on the 7th April I saw two or three that I estimated to be perhaps 20 feet in length.

## Family GECKONIDÆ.

*HEMIDACTYLUS BROOKII* Gray.

Four Geckoes of this species were caught at Gabt-el-Meghahid in April.

## Family VARANIDÆ.

*VARANUS NILOTICUS* (Linn.).

This large Lizard was met with on the Zeraf and Jebel rivers. A specimen from the Zeraf measured in total length 5 feet

1½ inches; snout to vent 2 feet 5½ inches; tail (tip broken) 2 feet 8 inches.

*VARANUS OCELLATUS* Rüpp.

Two specimens obtained, White Nile.

#### Family SCINCIDÆ.

*MABUIA STRIATA* (Peters).

One specimen of this Skink caught at Fashoda on the 22nd of March.

#### Family GLAUCONIIDÆ.

*GLAUCONIA CAIRI* (Dum. et Bibr.).

A little Snake caught at Gabt-el-Meghahid is apparently of this species, but unfortunately its somewhat shrivelled condition prevents its being determined for certain.

#### Family BOIDÆ.

*PYTHON SEBÆ* (Gmel.).

A young Python of this species was caught on the bank of the White Nile, near the mouth of the Bahr-el-Jebel, 14th April. Ventrals 280. Anal entire. Subcaudals 72. Scales in 93 rows.

#### Family COLUBRIDÆ.

*TROPIDONOTUS OLIVACEUS* (Peters).

Three specimens were caught in the sudd region of the Bahr-el-Jebel in April.

*CHLOROPHIS EMINI* (Günth.).

Three Snakes of this species were caught in the sudd on the Bahr-el-Jebel in April.

*PSAMMOPHIS SIBILANS* (Linn.).

A specimen of colour-variety E (Blgr. Cat. Snakes, iii. p. 161) was caught at Gabt-el-Meghahid in April: it had 1 præ- and 2 postoculars, temporals 2+2, 8 upper labials (4th and 5th enter eye), ventrals 183, subcaudals 100, and was in total length about 685 mm.

### V. BATRACHIANS.

#### Family RANIDÆ.

*RANA MASCARENSIS* Dum. et Bibr.

One specimen caught a few miles south of Jebel Ain on the 22nd April; this was the first and only batrachian I (or any of our party) saw during the whole time we were south of Khartoum. It was coloured olive and bronze, with indefinite markings.

## VI. FISHES.

Mr. G. A. Boulenger, F.R.S., has kindly determined the following fishes, specimens of which I collected and sent to the British Museum.

## 1. POLYPTERUS SENEGALUS.

Specimens were obtained on the Bahr-el-Zeraf, Bahr-el-Jebel, and Bahr-el-Ghazal. On the 8th of April two were caught with rod and line, by dangling a little piece of meat on a hook just under the surface of the water in a little shallow muddy backwater of the Jebel.

## 2. POLYPTERUS BICHIR.

On the 7th April a specimen was caught by hand on the Bahr-el-Jebel, frightened by the approaching steamer it had jumped out of the water on to the sudd.

*Colour* (in life). Olive-green, darker on the top of the head and along back, pale lemon-yellow below. Lips and underneath of head washed with pink. Tentacle red. Red lights about gills and pectoral fins. Body about vent, and ends of ventral, anal, and caudal fins, tinged with bright red. Iris yellow.

## 3. HETEROTIS NILOTICUS.

Sometimes called the "White Nile Salmon," and said to be very good eating, but I have not tried it personally. Specimen caught at Gabt-el-Meghahid on the 15th of April:—Total length over all 2 feet 3 inches; depth (at vent)  $5\frac{3}{4}$  inches.

## 4. GYMNARCHUS NILOTICUS.

A specimen of this large eel-like fish was caught near the junction of the Ghazal and Homar rivers on the 29th March; it measured in total length 3 feet  $9\frac{1}{2}$  inches.

## 5. TILAPIA NILOTICA.

A "Boultee" was caught at Gabt-el-Meghahid on the 15th April, and on the 29th March when steaming down the Bahr-el-Arab a large one jumped on board the gunboat: we ate it, but the flesh was not nice, being soft and "muddy."

## 6. SYNODONTIS SCHALL.

This Siluroid seemed numerous on the Bahr-el-Zeraf, specimens were caught on hook and line from the steamer while tied up to the bank.

## 7. BAGRUS DOCMAC.

Bahr-el-Zeraf, caught as above.

## 8. CLARIAS LAZERA.

Bahr-el-Zeraf, caught as above.